IN THE SPECIFICATION

Please amend the paragraphs of the specification as follows:

Please replace paragraph **[1010]** with the following amended paragraph:

[1010] A disadvantage of this approach is potential amplification of noise for ~~$A(z) << 1$~~ $\underline{|A(z)| << 1}$. Pre-coding the signal at a transmitter instead of performing equalization at the receiver may eliminate this disadvantage. Pre-coding at the transmitter is illustrated in **FIG. 3**. A transmitter **302** comprises a data source **304**, which provides data to be transmitted to a pre-coder **306**. The pre-coded data are then transmitted over a communication channel **308**, characterized by a transfer function A(z). The communication channel introduces noise N **310** and the resulting signal and noise are provided to a receiver **312**. If the pre-coder **306** is characterized by a transfer function $\frac{1}{A(z)}$, then the receiver **312** receives a signal given by the following equation:

A1

Please replace paragraph **[1011]** with the following amended paragraph:

[1011] Examination of Equation 4 reveals that the noise amplification problem has been eliminated for all values of $A(z)$, however, for ~~$A(z) << 1$~~ $\underline{|A(z)| << 1}$ the power required for correct pre-coding may exceed the transmitter's **302** available power. To eliminate the available power problem, one pre-coding scheme performs a $(1/A(z))\text{mod}(P_{\text{Transmitted}})$ transformation on the data prior to transmission. $P_{\text{Transmitted}}$ is the maximum power level at which the transmitter can transmit. At the receiver an inverse transformation $\text{mod}(P_{\text{Transmitted}})$ is carried out on the received data prior to decoding.

A2

Please replace paragraph **[1028]** with the following amended paragraph:

[1028] **FIG.4** illustrates a conceptual diagram of a multiple-access communication system **400** capable of performing the method in accordance with embodiments of the present invention. An [[AP]] <u>Access Point (AP) or base station</u> **402** transmits data to an [[AT]] <u>Access</u>

A3

Terminal (AT) **404** over a forward link **406(1)**, and receives data from the AT **404** over a reverse link **408(1)**. Similarly, the AP **402** transmits data to the AT **410** over a forward link **406(2)**, and receives data from the AT **410** over a reverse link **408(2)**. In accordance with the exemplary embodiment of the data communication system of the present invention, forward link data transmission occurs from one AP to one AT. Reverse link data communication occurs from one AT to one or more APs. Although only two ATs and one AP is shown in **FIG. 4**, one of ordinary skills in the art recognizes that this is for pedagogical purposes only, and the multiple-access communication system may comprise plurality of ATs and APs.

Cont A3

Please replace paragraph **[1039]** with the following amended paragraph:

[1039] **FIG. 6** is a simplified illustration of a forward link channel time-slot **600** in accordance with one embodiment of the invention. The time-slot **600** contains a pilot burst **602**, data **604a**, **604b, 604c**, and dedicated pilot burst **606**. Because the forward link is comprised of frames, wherein each frame comprises a concatenation of number of time-slots, the pilot burst **602** and the dedicated pilot burst **606** repeat themselves periodically. One of ordinary skills in the art understands that all other channels necessary supporting other functions of the communication system as described in reference to **FIG. 5** are present in the forward link channel time-slot **600**, e.g., MAC, [[RBC]] RPC, and other channels. In accordance with this embodiment, the pilot burst **602** provides the destination stations with a means of predicting a quality metric of the received signal. In one embodiment, the quality metric is a carrier-to-interference ratio (C/I). Because different destination stations utilize the pilot burst **602**, an origination station must not implement pre-coding on the pilot burst **602**. The dedicated pilot burst **606** is pre-coded in the same manner as the data destined to a specific AT. The specific AT uses the dedicated pilot burst **606** for demodulation in accordance with the above-described principles.

A4

Please replace paragraph **[1053]** with the following amended paragraph:

[1053] The forward link waveform ~~arrive~~ arrives at an antenna **914a** of the AT **916** over a communication channel **910a**, characterized by a transfer function $C_1(z)$. The communication

A5

channel **910a** introduces noise **912a**, and the resulting signal and noise are provided to an equalizer **918a**, characterized by a transfer function $H_1(z)$. The data also arrive at an antenna **914b** of the AT **916** over a communication channel **910b**, characterized by a transfer function $C_2(z)$. The communication channel **910b** introduces noise **912b**, and the resulting signal and noise are provided to an equalizer **918b**, characterized by a transfer function $H_2(z)$. Consequently, the demodulator **922** at the output of the summer **920** receives a signal modified by the transfer function $R(z)$, given by the following equation:

Cont A5

$$R(z) = G(z) \cdot C_1(z) \cdot H_1(z) + G(z) \cdot C_2(z) \cdot H_2(z) \qquad (5)$$

The AT **916** estimates the transfer functions $C_1(z)$, $C_2(z)$, in accordance with the above-described embodiments and adjusts $H_1(z)$, $H_2(z)$, and $G(z)$ to optimize a signal quality metric, e.g., maximum SINR at the demodulator **922**. The data decoded in accordance with the above-described embodiments are provided to a data sink **924**. The destination station **916** then computes and reports G(z) back to the origination station **902**.